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All of the specimens are quite small, the largest hardly exceeding three inches in height. In my Windsor plant the presence of stomata is at once apparent; the spinules on the macrospores are short, thick, and in connected ridges; the microspores being abundant and characteristic of the species. In the Sandwich plant the stomata, though present, are more difficult to find, being very few and indistinct; and the macrospores, though of equal size with those of the former plant (about 0″.23 in diameter) differ in being provided with spinules which are long, slender, and, occasionally, slightly forked. No microspores were observed. The presence of stomata in both these distinct forms of this species, which is a most variable one, is worthy of note.—HENRY GILLMAN, *Detroit, Michigan.*

ZOOLOGY.

A NEW GENUS OF BRACHIOPODS.—Among some small shells (supposed to be the young of *Waldheimia cranium*), recently received from the Northeast Atlantic, through Mr. Jeffreys, were three specimens of an undescribed genus of the subfamily *Terebratulinæ.* The shell resembles *Magasella*, being smooth and with an incomplete foramen. The loop nearly resembles that of *Ismenia sanguinea* Chemn., but has no secondary attachment to the hæmal valve, and the latter is destitute of a septum. I propose, for the genus, the name of *Frenula*, from the bridle-shaped loop; and, for the species, that of *Frenula Jeffreysii.* More extended descriptions are in preparation.—W. H. DALL.

EMBRYOLOGY OF LIMULUS.—A reviewer in the Quarterly Journal of Microscopical Science (Jan. 1871, p. 89), seems to think it very little to our credit that the embryology of Limulus should have remained so long unknown, "seeing that they are favored by its presence in abundance on their coasts." This is hardly a charitable view to take of the subject, and shows that the writer of the notice has not the most remote idea of the difficulty attending researches on the sea coast. It is impossible to make connected observations, without extending them over a long series of years, and no one who is not thoroughly familiar with the habits of any marine animal at all seasons of the year, can hope to accomplish anything more than the most fragmentary work. The time of spawning of many of our most common inhabitants of the coast, is often very short, and several seasons are frequently wasted in finding out this point alone. The difficulties are greatly increased when the workers live at some distance from the coast, and instead of the slurs the writer seems to cast upon the work which has been so well done as far as it is intended to go (see paper to be issued in Memoirs Boston Soc. Nat. Hist. 1871), he might have spent some of his ingenuity in looking over the long list of marine animals, known to live on the coast of Great Britain, of which the development is unknown (many of which are fully as important as Limulus), and do what he could to fill the gaps. We might suggest to the reviewer the Spatangoids, the Ctenophoræ, the eggs of which can be more readily supplied to him than those of Limulus, from the English side of the Atlantic, and to come to more accessible material, any one of the many families of marine fishes of which we as yet know nothing, neither in England nor elsewhere.

Readers of the Journal who are informed as to the progress of science will be astonished to hear of "HÆCKEL'S* law of individual development epitomizing palæontological development!" and to learn that A. Dohrn and E. Van Beneden are the great pioneers in the "speculations on the phylogeny of Arthropoda." As the writer seems to have but a partial knowledge of what has been done in Germany and Russia, we would refer him to Siebold's Zeitschrift for further information. — * *

THE PIGEON HAWK. — In the September number of your journal, Vol. iv, page 439, Mr. Winfred Stearns, of Amherst, comments upon Mr. Samuel's statement that he never saw the nest of the Pigeon Hawk, and knows of but one instance in which it has ever been found in New England. Mr. Stearns thinks Mr. Samuel could not have inquired much into the matter, as he, Mr. Stearns, has found no less than three nests in that very town of Amherst. Unfortunately for Mr. Stearns's statement, yet fortunately as enabling one to test the correctness of his alleged fact, he states that these nests *were all in hollow trees*. This is a condition in which the nest of a Pigeon Hawk is never found, and one in which no other hawk than the Sparrow Hawk is ever found, demonstrating at once that the hawks referred to by Mr. Stearns were the latter birds, which are not uncommon in that part of the State. I deem it of sufficient importance that an error in bird history so serious as Mr. Stearns has made should be set right, and not be permitted to pass unchallenged or accepted as fact.

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*"Hæckel's law of individual development epitomizing palæontological development" is, thanks to Professor Agassiz's teachings, as familiar to students in this country as household words. His statement of the law appears as early as 1857, a chapter of the Essay on Classification being devoted to this subject. Agassiz also alluded to such a law so early as the publication of the "Poissons Fossiles," and Milne-Edwards referred to it in 1844 in the "Annales des Sciences Naturelles." — EDS.

I may be permitted to add that I have "inquired into the matter" for the past forty years, and I have yet to know of the first well authenticated instance of the nest and eggs of the Pigeon Hawk having ever been found in any part of Massachusetts. That it may breed in some mountainous and wild regions is, of course, possible, and my inability to trace it is only negative testimony. The horizon of one man is at the best very limited, and many ornithological facts occur that are not dreamed of in his philosophy. If any one else has "inquired into the matter" more successfully, I shall be very glad to be informed thereof.—T. M. BREWER.

PARTHENOGENESIS IN THE PUPA STATE OF INSECTS.—In Vol. XV., No. 8, of the "Memoirs of the Academy of St. Petersburg," M. O. von Grimm, describes a curious instance of Parthenogenesis in a species of the dipterous genus Chironomus. Like the well-known case of Miastor, discovered by Prof. Wagner, this is an example of reproduction by an insect in one of its preparatory, and therefore sexless stages, called *Pœdogenesis*, by Von Baer. The formation of the egg-like reproductive bodies commences in the larvæ; but the eggs are not extruded until the insect has passed into the pupa state. It appears that in the spring the larvæ, produced in the ordinary way from eggs, grow rapidly, and after the third change of skin, attain their full size, and show distinct traces of the pupa within them. The eggs are produced direct from the pupa in this condition. In the autumn the course of development during the preparatory changes is precisely the same; the pupa, however, changes into the imago, which deposits the eggs, probably after copulation, in the ordinary manner. The mode of development of the eggs and ovaries, and that of the embryo in the egg, are described by the author at considerable length, and illustrated by good figures. The eggs are developed in the same way, both in the spring and in the autumn, although in the one case they will be deposited by the pupa, and in the other by the imago; and as they present no difference in their structure, the author regards them all as eggs, and rejects the distinction into *ova* and *pseudova.* He seems inclined to adopt the notion that the supposed cases of Parthenogenesis may be due to self-fecundation.—*The Academy.*

GEOLOGY.

Cave Mammals in Pennsylvania.—Prof. Cope, at a recent meeting of the American Philosophical Society, announced the discovery by Charles M. Wheatley, of Phœnixville, Penn., of a cave in the auroral limestone of Chester Co., containing remains of Postpliocene Mammalia. The species so far recovered, are a tapir of large size, a small horse, a very large ruminant, and a mastodon (*Trilophodon Ohioticus*); also some very fine remains of a *Megalonyx*, and the remains of a large Mylodon, and the bones and teeth of a cave bear of large size; it is very distinct from the Cave Bear of Europe, or the living bears of the Northern Hemisphere; it is the *Ursus pristinus* (*Arctodus* of Leidy). Remains of serpents, turtles and insects also occur. Prof. Cope stated that Mr. Wheatley was continuing the excavations, and that he would make a further communication of results at a future time.

Remains of the Mammoth in Europe.—In addition to the celebrated skeleton of the Mammoth from Siberia which was found in such a remarkable state of preservation, the Museum at St. Petersburg contains a gallery entirely devoted to the remains of the *Elephas primigenius*, including probably many nearly entire skeletons. The most perfect skeleton out of St. Petersburg is probably one in the Museum at Brussels, found some time since and recently put together by M. Dupont, the present keeper of the Museum. An almost entire skull with tusks, was found some years since at Ilford in the Valley of the Thames, and is now in the British Museum. From the comparative height and slenderness of the skeleton of the mammoth as compared with that of the existing elephant, it would appear to have been a more active and lighter-built animal. The excavation of the fortifications around Antwerp, has led to the discovery not only of elephants' and mastodons' remains, but of a most wonderful series of cetacean bones. These are now arranged in a fine gallery in the Brussels Museum, which now bids fair to be one of the most attractive of continental institutions.—A. W. B.